

# MARKET REACTIONS TO EARNINGS SURPRISE AND REVENUE SURPRISE

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## **Abstract**

This study is based on Kama's (2009) research on the difference between the market reactions to revenue surprise compared to earnings surprise. In addition, we analyse the effect of corporate governance on these results. We show that earnings surprise has a more significant effect on market reactions than revenue surprise. Furthermore, the market reacts more to earnings information when companies have good corporate governance as measured by analyst following. Interestingly, the market reacts stronger to revenue surprise than earnings surprise in high R&D intensity companies.

**Keywords:** market reaction; earnings surprise; revenue surprise; market capitalization; R&D intensity; corporate governance.

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# 1. Introduction

Numerous studies focus on interpreting why the market reacts more strongly to revenue surprise rather than expense surprise. Kama (2009) shows that the dominating power of earnings surprise of revenue surprise has decayed over the year, and revenue surprise has become more pronounced especially for high R&D intensity firms in their fourth fiscal quarter that operate in oligopolistic competition. Following Kama's idea, we first show that stock price surprise significantly responds to both the revenue surprise and earnings surprise. Similar to Kama, we find that for high R&D intensity companies, the market reacts more to revenue surprise than earnings surprise. We then try to deepen our research and analyse the effect of corporate governance on the earnings response coefficient of earnings surprise and revenue surprise. We hypothesize that good corporate governance will prevent earnings manipulation and make earnings information more reliable. To measure the effect of corporate governance, we consider two relatively intuitive proxies: market capitalizations and number of analysts.

Such interpretations provide useful information about the relative importance of revenue and earnings information. The analysis contributes to institutional investors' strategic decision-making as well as individual investors' active portfolio management.

Our intention is to see whether earnings surprise and revenue surprise are both significant explanatory variables to stock return surprise through running several different liner regressions. We also add interaction terms into our regression model to analyse the marginal effect of R&D intensity and corporate governance practice on the earnings and revenue surprise.

## 2. Literature Review

More and more researchers are exploring the market reactions to earnings surprise, revenue surprise and expense surprise around announcement date. These researches have extended the theories of Ball and Brown (1968) and Beaver (1968) that market reactions to information on different disclosed financial measurements are reflected by fluctuation in stock returns. Earnings and revenue can have difference in their signalling effect on valuation. For example, Porter (1985) puts forward that revenue growth is a more effective way than cost reduction to ensure sustainable earning growth. Swaminathan and Weintrop (1991) find that the stock prices fluctuate more to changes in revenue rather than to expenses on per dollar basis. Philip G. Berger (2003) points out that there will be a negative impact on the stock price change if the effect of a growth company cost reduction (expense changes) exceed that of revenue increase. Yonca ertimur and Joshua Livnat (2003) also expand Swaminathan and Weintrop's (1991) research by grouping the full samples of firms into value companies and growth companies and then they compare the different market reactions to revenue surprise and expenses surprise. Compared with value companies' investors, their results show that those investing in growth companies react more strongly to revenue surprise. Many experts study the reasons and they use revenue persistency, earning management, accounting manipulation and homogeneity of revenue to explain Yonca ertimur and Joshua Livnat's results.

With respect to market reaction, Kama (2009) employs earnings surprise to replace expense surprise used by other researchers as variables and proves the domination of earnings surprise over revenue surprise. Kama (2009) employs contextual analysis method and concludes that the dominating power of earnings surprise diminishes especially for companies in oligopolistic competitions, in the fourth fiscal quarter and in R&D intensive industries. Since oligopolistic companies are distinguished by having a large market share which is highly related to their revenue generating abilities and companies lean on window dressing especially near the year end, revenue become a more trustworthy indicator for market assessment. Kothari et al. (2002) earlier finds that the higher R&D expense, the more volatile the company's earnings is. Therefore, the market tends to give more weight to revenue surprise as an indicator for evaluating the reliability of company performance. In our paper, we will show that in terms of market reaction (stock price surprise), earnings surprise has dominating power over revenue surprise. However, under specific

circumstances, for example, in high R&D intensive companies, earnings surprise power is less important than revenue surprise.

We also extend Kama's (2009) research on market reaction to earnings surprise and revenue surprise by taking corporate governance into consideration and using market capitalizations and number of analysts as governance proxies. Researches indicate that good corporate governance environment benefits the market pricing and analyst forecasts. Yu (2011) pointed out that there is a positive relationship between stock price informativeness and corporate governance. Barniv, Myring, and Thomas (2005) also stressed the importance of good corporate governance for analysts to realize their abilities. To make the corporate governance indicator measureable and quantitative, we assume in our paper that companies with large market capitalization are those that attract large number of analysts and market scrutiny so they tend to have strong corporate governance level. We conjecture that earnings surprise becomes more significant than revenue surprise when companies have good corporate governance.



### 3. Sample, Variables and Descriptive Statistics

The raw data used to run the regressions for all public companies are attained from IBES, CRSP and COMPUSTAT database for the period January 1<sup>st</sup>, 1990- December 31<sup>st</sup>, 2015. Since the analysts' forecasts for financial variables are updated on monthly basis, we choose the closest consensus forecast date to the actual announcement date as the reference to look up the corresponding forecast EPS and forecast revenue. Here revenue is on per share basis. Three surprise terms are generated through the following formulas and those with empty values have been dropped.

$$Surprise_{EPS}(SUE) = \frac{EPS_{actual} - EPS_{forecast}}{|EPS_{actual}|}$$

$$Surprise_{REVENUE}(SUR) = \frac{Revenue_{actual} - Revenue_{forecast}}{|Revenue_{actual}|}$$

Market reactions are represented by two-day return through compounding daily abnormal return (AR) which are chosen from announcement date ( $T_0$ ) to the day after ( $T_1$ ). All the surprise terms are calculated in percentage format.

$$Abnormal\ return = HoldingPeriodReturn - ValueWeightedReturn$$

$$Return_{2days}(TDR) = (1 + AR_{T_0}) * (1 + AR_{T_1}) - 1$$

We first run the following simple liner regression model to see whether both  $\beta_1, \beta_2$  are significantly different from zero at 95% or 99% confidence level and whether  $\beta_1 > \beta_2$ .

$$TDR = \alpha + \beta_1 * SUE + \beta_2 * SUR + \varepsilon$$

We further try to prove Kama's (2009) theory that for high R&D intensity companies, the dominating power of earnings surprise diminishes and the market inclines to rely on revenue surprise. High R&D intensity companies are defined by those with RDI exceeds 1.49 (near 95<sup>th</sup> percentile). We run similar regression with a dummy variable  $D^{HRD}$  being introduced.

$$R\&D\ Intensity\ (RDI) = \frac{R\&D\ Expenditure}{Revenue}$$

$$TDR = \alpha + \beta_0 * D^{HRD} + \beta_1 * SUE + \beta_2 * D^{HRD} * SUE + \beta_3 * SUR + \beta_4 * D^{HRD} * SUR + \varepsilon$$

Following the above regression method, we regress TDR with two dummy variables  $D^{LCAP}$  (large market capitalization) and  $D^{LNUM}$  (large number of analysts), SUE, SUR and their interaction terms. We also place a comparative group that replaces  $D^{LCAP}$  and  $D^{LNUM}$  with  $D^{SCAP}$  and  $D^{SNUM}$ . In our paper, companies with more than 2 billion market capitalization are defined as large cap companies ( $D^{LCAP}$ ) and those with less than 50 million are small cap companies ( $D^{SCAP}$ ). Companies with more than 10 analysts (75<sup>th</sup> percentile) are subsamples for  $D^{LNUM}$  and those with only 1 analyst are subsamples for  $D^{SNUM}$ . We hypothesize that with good corporate governance, market participants will respond more strongly to earnings information than revenue information. Besides, we regress TDR with all dummy variables related to corporate governance measurement, SUR and SUE in the following form:

$$TDR = \alpha + \beta_0 * D^{LCAP} + \beta_1 * D^{LNUM} + \beta_2 * D^{LCAP} * SUE + \beta_3 * D^{LNUM} * SUE + \beta_4 * SUE + \beta_5 * D^{LCAP} * SUR + \beta_6 * D^{LNUM} * SUR + \beta_7 * SUR + \varepsilon$$

Table 1 provides descriptive statistics for variables in full sample (Panel A) and R&D intensity sample (Panel B). The mean and median of TDR in both cases are zero in Panel A. If we compare the number TDR within the four different percentiles, it shows that TDR almost conforms to standard normal distribution. However, the mean of SUE and SUR are negative and less than its respective median, indicating that both SUR and SUR are left skewed. Therefore, we eliminate the effects of extreme values of SUE and SUR by winsorizing the extreme 1% observation on both sides.

**Table 1**  
**Descriptive Statistics**

<i>Variable</i>	<i>Mean</i>	<i>Std Dev</i>	<i>5th Pctl</i>	<i>25th Pctl</i>	<i>Median</i>	<i>75th Pctl</i>	<i>95th Pctl</i>
<b>Panel A: Full Sample (N=60,501)</b>							
TDR	0.00	0.09	-0.14	-0.04	0.00	0.04	0.13
SUE	-0.06	0.47	-0.74	-0.04	0.01	0.05	0.34
SUR	-0.01	0.17	-0.15	-0.01	0.00	0.02	0.11
L(MKT)	13.50	1.84	10.63	12.23	13.42	14.69	16.69
NOA	7.25	6.59	1.00	2.00	5.00	10.00	21.00
<b>Panel B: R&amp;D Intensity Sample(N=25,466)</b>							
TDR	0.00	0.09	-0.14	-0.04	0.00	0.04	0.15
SUE	-0.02	0.43	-0.56	-0.03	0.01	0.05	0.38
SUR	-0.01	0.14	-0.12	-0.01	0.00	0.01	0.07
L(MKT)	13.61	1.86	10.77	12.31	13.48	14.79	16.86
NOA	7.66	7.02	1.00	3.00	5.00	11.00	31.00

*Notes:*

<sup>1</sup> The table provides descriptive statistics on the research variables for the full sample (Panel A) and firms with high R&D expense to Sales ratio higher than 1.49 (Panel B).

<sup>2</sup> Definitions of variables:

- TDR – two-day return – holding period return minus value-weighted return compounded over the actual date of announcement and the next day, calculated from CRSP Jan 1<sup>st</sup> 1990 to Dec 31<sup>st</sup> 2015.
- SUE – surprise in earnings – difference between actual earnings per share announced and mean earnings per share by analysts estimate, divided by absolute value of actual earnings per share.
- SUR – surprise in revenue – actual and mean analyst estimate of revenue taken from IBES, divided by number of shares outstanding from CRSP.
- L(MKT) – log normal of market capitalization - calculated by multiplying absolute value of stock price and number of shares outstanding on announcement date from CRSP.
- NOA – number of analyst estimate – taken from IBES.

## 4. Empirical Results

### 4.1 Contextual Analysis

To study whether market reacts differently to earnings and revenue surprise based on certain characteristics, we use market capitalization, number of analyst estimates and R&D intensity as specifications in regression analysis. The dependant variable is two-day cumulative return (TDR). The independent variables are SUE (surprise in earnings) and SUR with dummy variables  $D^{LCAP}$ ,  $D^{SCAP}$ ,  $D^{LNUM}$ ,  $D^{SNUM}$  and  $D^{HRD}$ . Table 2.1 demonstrates simple liner regression of SUE and SUR and T- test of difference between the means. Table 2.2 presents regression results with individual dummy variables. Table 3 presents combined dummies – market cap and number of analysts. Table 4 looks at R&D intensity.

#### 4.1.1 Market Capitalization

Specification 1 includes only SUE and SUR. Similar with Kama (2009), both coefficients SUE (19.52) and SUR (18.77) are positive and significant at 1% level. SUE is larger than SUR, particularly after adding firm-fixed effect (20.79 and 12.14). The difference between mean SUE and mean SUR is significant (see Table 2.1). A larger coefficient of SUE means SUE is major explanatory variable for TDR. Two-day market return is highly sensitive to changes in earnings. This result suggests that market reacts more to earnings surprise than revenue surprise in most instances.

Table 2.1 Contextual Analysis (SUE and SUR)										
<i>Specs</i>	<i>Variable</i>	<i>Coef.</i>	<i>t-stat.</i>	<i>Coef.</i>	<i>t-stat.</i>	<i>N</i>	<i>Mean</i>	<i>Std. Err</i>	<i>Std. Dev</i>	<i>95% Confidence Interval</i>
<i>(Firm – fixed)</i>										
1	SUE	19.52**	24.80	20.79**	16.51	60,500	-55.15	0.00	0.47	-0.06 -0.05
	SUR	18.77**	8.38	12.14**	3.49	60,500	-12.59	0.00	0.17	-0.01 -0.01
	Combined					121,000	-0.30	0.00	0.35	-0.04 0.03
	Diff=mean(SUE) - mean(SUR)						-0.04	0.00		-0.05 -0.04
t = - 21.02						H0: Diff=0 Ha: Diff <0 Pr(T < t) = 0.00		Ha: Diff !=0 Pr( T  >  t )		Degree of freedom = 120998 Ha: Diff > 0 Pr(T > t) = 1.00

Specification 2 adds log market capitalization L(MKT). Figures show that earnings surprise has the only significant coefficient in explaining stock surprise, while revenue surprise is not significant. Coefficients for revenue surprise are positive and significant at 1% level in all other specifications.

Specification 3 includes dummy variable  $D^{LCAP}$  for companies with large capitalization. The coefficient of SUE is slightly larger on its own. Yet, interaction term  $D^{LCAP} * SUE$  (-5.17) shows significantly decreasing effects of earnings surprise. Overall coefficient of SUE (14.68) is lower than SUR (19.12). This result indicates that for large-cap firms in general, market is more sensitive to surprise in revenue. Ghosh et al. (2005) argues that, revenues are valued more because they indicate earnings persistence and future operating performance. However, at individual firm level, SUE (15.86) holds higher coefficient than SUR (12.24). We interpret this as market emphasis on firm's profitability.

Specification 4 includes dummy variable  $D^{SCAP}$  for companies with small capitalization. Interaction terms are not significant, which may result from small number of observations (3,879). SUE coefficients are larger than SUR, consistent with findings in specification 1. Yet the SUE coefficients are smaller than those in specification 2 L(MKT), indicating a less explanatory power of earnings surprise for small-cap firms.

#### **4.1.2 Number of Analyst Estimate**

After examining market capitalization, we turn to test effects of number of analyst estimates. L(NOAA) is added in specification 5. Interaction terms  $L(NOAA) * SUE$  incrementally increases explanatory power of earnings surprise.

Specification 6 examines firms with more than 10 analyst estimates. Firms with more analyst estimates are usually larger in size (0.54 correlation with large-cap firms). These firms are also more likely to have better corporate governance, less earnings management. We find that coefficient of SUE (28.45) is much higher than SUR (18.64). We conclude that better corporate governance increases importance and credibility for earnings.

Specification 7 examines firms with only 1 analyst estimates. Firm in this group tends to be small (correlation of 0.34 with small-cap firms). Coefficients for SUE are (12.65 or 14.12) smaller than SUR (20.48 or 15.71) in general or at firm level. These figures indicate that when information is scarce, revenue surprises are valued more by market.

**Table 2.2**  
**Contextual Analysis (Individual)**

Specs.		SUR	L(MKT)	D <sup>LCAP</sup> *	D <sup>SCAP</sup> *	L(NOA)	D <sup>LNUM</sup> *	D <sup>SNUM</sup> *	SUE	L(MKT)	D <sup>LCAP</sup> *	D <sup>SCAP</sup> *	L(NOA)	D <sup>LNUM</sup> *	D <sup>SNUM</sup> *	Adj-R <sup>2</sup>
			SUR	SUR	SUR	SUR	SUR	SUR		SUE	SUE	SUE	SUE	SUE	SUE	N
2	Coef	19.89	-0.11						27.45**	-0.69						0.01
	t-stat	1.22	-0.10						4.60	-1.46						60,501
	Firm															
	Fixed	Coef	-17.90	2.38					34.87**	-1.12						0.22
		t-stat	-0.69	1.23					3.55	-1.48						60,501
3	Coef	19.12**		-8.53					19.85**	-5.17*						0.01
	t-stat	8.00		-1.24					23.75	-2.06						60,501
	Firm	Coef	12.24**	-1.21					21.45**	-5.59*						0.22
	Fixed	t-stat	3.09	-0.16					15.41	-2.04						60,501
4	Coef	18.32**		-3.89					18.99**		1.11					0.01
	t-stat	7.22		-0.71					22.01		0.52					60,501
	Firm	Coef	13.68**	-6.77					20.39**		3.83					0.22
	Fixed	t-stat	3.96	-0.57					15.76		0.90					60,501
5	Coef	16.52**				2.06			12.73**				6.98**			0.01
	t-stat	5.01				0.84			10.77				7.51			60,501
	Firm	Coef	8.77			4.12			14.29**				6.71**			0.22
	Fixed	t-stat	1.59			1.09			8.30				4.53			60,501
6	Coef	18.64**				-0.02			18.87**				9.58**			0.01
	t-stat	7.91				-0.00			23.17				2.95			60,501
	Firm	Coef	11.44**			6.87			20.24**				7.95			0.22
	Fixed	t-stat	3.11			0.63			15.51				1.64			60,501
7	Coef	20.48**						-5.04	22.76**					-10.11**		0.01
	t-stat	7.39						-1.07	23.57					-6.01		60,501
	Firm	Coef	15.71**					-9.67	23.90**					-9.78**		0.22
	Fixed	t-stat	3.92					-1.25	15.38					-3.96		60,501

#### 4.1.3 Combined Variables

When combining large-cap with large number of analyst estimates, table 3 shows reinforcing explanatory power of earnings surprise. Specification 8 includes L(MKT) and L(NOA). Both confidence level and coefficient value are larger for SUE. Specification 9 examines firms that fall in the intersection of large-cap and large-number of analyst estimates. Explanatory power in SUE is significantly increased by  $D^{LNUM}$ , and decreased by  $D^{LCAP}$ . Coefficient for SUE (24.07) is larger than SUR (18.96). At firm level the gap increased—SUE (23.82) versus SUR (11.80). The larger influence of earnings surprise mainly come from number of analyst variable.

Specification 10 examines firms that fall in the intersection of small-cap and small-number of analyst estimates. As expected, results are the opposite of specification 9. Explanatory power of SUE is significantly decreased by  $D^{SNUM}$ , and increased by  $D^{SCAP}$ . Coefficient for SUE (16.24) is smaller than SUR (19.88). At firm level the gap widened—SUE (12.06) versus SUR (16.02).

**Table 3**  
**Contextual Analysis (Combined)**

Specs.		<i>SUR</i>	<i>L(MKT)</i>	<i>D<sup>LCAP</sup></i>	<i>D<sup>SCAP</sup></i>	<i>L(NO A)</i>	<i>D<sup>LNUM</sup></i>	<i>D<sup>SNUM</sup></i>	<i>SUE</i>	<i>L(MKT)</i>	<i>D<sup>LCAP</sup></i>	<i>D<sup>SCAP</sup></i>	<i>L(NO A)</i>	<i>D<sup>LNUM</sup></i>	<i>D<sup>SNUM</sup></i>	Adj-R <sup>2</sup>
		<i>*SUR</i>	<i>*SUR</i>	<i>*SUR</i>	<i>*SUR</i>	<i>*SUR</i>	<i>*SUR</i>	<i>*SUR</i>	<i>*SUE</i>	<i>*SUE</i>	<i>*SUE</i>	<i>*SUE</i>	<i>*SUE</i>	<i>*SUE</i>	<i>*SUE</i>	<i>N</i>
8	Coef	35.49*	-1.95			5.34			48.10**	-3.08**			9.74**			0.01
	t-stat	2.02	-1.23			1.62			7.49	-5.62			9.13			60,501
	Firm Coef	-5.13	1.12			3.11			56.22**	-3.60**			9.94**			0.22
	Fixed t-stat	-0.16	0.40			0.56			5.34	-4.23			5.95			60,501
9	Coef	18.96**		-11.88		6.43			19.43**	-7.65**			12.29**			0.01
	t-stat	7.85		-1.47		0.71			22.95	-2.92			3.62			60,501
	Firm Coef	11.80**		-6.03		10.35			20.98**	-7.93**			10.77*			0.22
	Fixed t-stat	3.01		-0.59		0.73			14.98	-2.74			2.09			60,501
10	Coef	19.88**			-0.27			-6.22	22.07**		5.70*				-11.53**	0.01
	t-stat	7.03			-0.05			-1.20	22.40		2.53				-6.55	60,501
	Firm Coef	16.02**			-1.86			-8.88	23.36**		8.10				-11.30**	0.22
	Fixed t-stat	4.14			-0.14			-1.02	15.22		1.81				-4.33	60,501

Notes:

<sup>1</sup> The table presents mean coefficients and associated t-statistics for 26 yearly cross-sectional regression.

<sup>2</sup> Definitions of variables:

- TDR – two-day return – holding period return minus value-weighted return compounded over the actual date of announcement and the next day, calculated from CRSP Jan 1<sup>st</sup> 1990 to Dec 31<sup>st</sup> 2015.
- SUE – surprise in earnings – difference between actual earnings per share announced and mean earnings per share by analysts estimate, divided by absolute value of actual earnings per share.
- SUR – surprise in revenue – actual and mean analyst estimate of revenue taken from IBES, divided by number of shares outstanding from CRSP.
- L(MKT) – log normal of market capitalization.
- *D<sup>LCAP</sup>* – a dummy variable that obtains the value of ‘1’ if the market capitalization is greater than \$2 billion.
- *D<sup>SCAP</sup>* – a dummy variable that obtains the value of ‘1’ if the market capitalization is less than \$50 million.
- L(NO A) – log normal of number of analyst estimates.
- *D<sup>LNUM</sup>* – a dummy variable that obtains the value of ‘1’ if the number of analyst estimate exceeds ten.
- *D<sup>SNUM</sup>* – a dummy variable that obtains the value of ‘1’ if the number of analyst estimate equals one.

<sup>3</sup> Coefficients estimates are multiplied by 1,000. \*, \*\* are significantly differently from zero at 1% and 5% level, respectively.]

#### 4.1.4 Summary

The conclusion from Table 2 and 3 is that, earnings surprise commonly explains more of market reaction than revenue surprise. Coefficient for SUE (SUR) is more (less) sensitive to interactions with dummy variables. Number of analyst estimate demonstrates more significant and larger influence over SUE than market capitalization. Both *D<sup>LCAP</sup>* and *D<sup>SNUM</sup>* significantly decrease explanatory power of SUE, with different reasons. The former is because market places incrementally increasing attention on earning persistence and future performance for large-cap firms. Those two characteristics are implied in revenue, not earnings. The latter is due to information scarcity. Market attention moves towards revenue when perceived earning precision is low.

*D<sup>LNUM</sup>* increases the effect of SUE on stock surprise, particularly when combined with *D<sup>LCAP</sup>*. The least strong dummy variable is *D<sup>SCAP</sup>*. It increases explanatory power of SUE at 5% significance level only when combined with *D<sup>SNUM</sup>*. The lack of significance may originate from few observations (3,879 and 8,772 respectively).

## 4.2 R&D Intensity Analysis

Table 4 presents R&D intensity analysis. Specification 1 includes variable SUE, SUR and RDI. Coefficients for SUE are positive and significant, explains more of TDR similar with results in specification 1 in Table 2.

Specification 2 adds dummy variable  $D^{HRD}$  as firms with high R&D intensity. Interaction term reduces effect of SUE significantly at 1% level ( $D^{HRD} * SUE$  coefficient of -21.13), making SUR (21.97) the dominant factor for stock surprise. This indicates that, in general when R&D expense to sales ratio is high, market perceives riskiness in its earnings and values more of signal given by sales. After adding firm-fixed effect, interaction term loses significance, SUE retains significant and higher coefficient 25.37 than SUR (18.15). This suggests that at individual firm level, market values growth potential embedded in high R&D intensity, and grants tolerance to less satisfactory sales performance so long as the firm demonstrates promising earning capability.

**Table 4**  
**R&D Intensity Analysis**

<i>Specs.</i>		<i>SUR</i>	<i>D<sup>HRD</sup></i> <i>*SUR</i>	<i>RDI</i>	<i>SUE</i>	<i>D<sup>HRD</sup></i> <i>*SUE</i>	<i>Adj-R<sup>2</sup></i> <i>N</i>
1	Coef.	20.80**		-1.35**	22.81**		0.02
	t-stat.	5.01		-5.42	16.71		25,465
	Firm	Coef.	15.53*	-0.92*	25.21**		0.19
	Fixed	t-stat.	2.47	-2.08	11.94		25,465
	Coef.	21.97**	-1.85		23.43**	-21.13**	0.02
	t-stat.	4.38	-0.21		16.89	-2.67	25,465
2	Firm	Coef.	18.15*	-7.27	25.37**	-8.73	0.19
	Fixed	t-stat.	2.23	-0.62	11.78	-0.88	25,465

*Notes:*

<sup>1</sup> The table presents mean coefficients and associated t-statistics for 26 yearly cross-sectional regression.

<sup>2</sup> Definitions of variables:

- TDR – two-day return – holding period return minus value-weighted return compounded over the actual date of announcement and the next day, calculated from CRSP Jan 1<sup>st</sup> 1990 to Dec 31<sup>st</sup> 2015.
- SUE – surprise in earnings – difference between actual earnings per share announced and mean earnings per share by analysts estimate, divided by absolute value of actual earnings per share.
- SUR – surprise in revenue – actual and mean analyst estimate of revenue taken from IBES, divided by number of shares outstanding from CRSP.
- RDI – R&D expense over revenue ratio, calculated from Compustat.
- $D^{HRD}$  – a dummy variable that obtains the value of ‘1’ if the R&D expense over revenue ratio is larger than 1.49 (95<sup>th</sup> Pctl).

<sup>3</sup> Coefficients estimates are multiplied by 1,000.

\*, \*\* are significantly differently from zero at 1% and 5% level, respectively.



## 5. Conclusion

This study is focused on examining whether and when one of the two announcement surprises (earnings and revenue) has a larger effect on stock surprise. Our aim is to show that the different explanatory power of earnings and revenue surprise to market surprise depends on some firm characteristics.

Consistent with Kama (2009), we find that in general, earning surprise has larger effect on market reaction than revenue surprise. Based on the assumption that market value and number of analyst coverage are indicators of organizational governance, we test whether market reacts less to earnings surprise when firms have weaker organizational governance. The idea is that the earnings news is less informative than the revenue news when the firms have weaker governance; while it is relatively easy to change the earnings figures, it is hard to do so for the sales figures. We proxy for governance with the variable number of analysts, where the interaction terms of number of analysts with SUE is negative. While we find that number of analysts seem to have effect on the market reaction to SUE, market capitalization does not give strong support for our hypothesis on governance. Explanatory power of earnings surprises is incrementally decreasing for large-cap firms, while behaviors of two surprises are not significantly different from overall sample for small-cap firms. Similar with what Kama (2009) has found, companies with high R&D to revenue ratio can have relatively lower explanatory power of SUE on market reaction, partly explained by its high earning volatility and requirement of sales as indicator of performance. Our study begins with results supporting the statement that earnings surprise generally has larger impact on stock surprise, as suggested in relevant literatures. The study then further examines difference in explanatory power of earnings and revenue surprise, depending on contextual factors including market capitalization, number of analyst estimates and R&D intensity.

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